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EXAMINER	
ARCHIE, NINA	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/601,171	FISCHER ET AL.	
	Examiner	Art Unit	
	NINA A. ARCHIE	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *61-63,65-68,77,79-81,86,87,91,93-101 and 104-115* is/are pending in the application.

4a) Of the above claim(s) *96-100* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *61-63, 65-68, 77, 79-81, 86-87, 91, 93-95, 101, and 104-115* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office is responsive to Applicant's amendment and response filed 12-4-07. Claims 61-63, 65-68, 77, 79-81, 86-87, 91, 93-101, and 104-115 are pending. Claims 1-60, 64, 69-76, 78, 82-85, 88-90, 92, and 102-103 have been cancelled. Claims 96-100, has been withdrawn. Claims 61, 77, 87, 95, and 101 have been amended. Claims 104-115 have been added.

Objections/Rejections Withdrawn

2. In view of the Applicant's amendment and remark following objections are withdrawn.

a) Objection to claims 77-79, 81-85, and 87, Specification Objection, is withdrawn in light of applicant's amendment to the specification.

b) Rejection to claims 78 and 92, under Obviousness-Double Patenting Rejection 6,610,293, is withdrawn in light of applicant cancellation of claims.

c) Rejection to clams 77-88, 92-93 and 95 under Obviousness-Double Patenting US Application No 10/323,927, has been withdrawn in light of US Application No. 10/323,927 is US Patent No. 7,250494.

d) Rejection to claims 61-76, 78-80, 82-85, 88-92, and 100 under Obviousness-Double Patenting US Application No 11/193,440, has been withdrawn in light of applicant cancellation of claims and light of amended claims of copending application 11/193,440.

e) Rejection to claims 77-88, 93 and 100 under Obviousness-Double Patenting US Application No 10/323,926, has been withdrawn in light of applicants' amendment thereto.

f) Rejection of claims 77-79, 81-85, 87 and 89-96 under 35 U.S.C. 112, first paragraph, is withdrawn in light of applicants' amendment thereto. (claims 77, 79-81, 87, 91, 93-95) and light of cancellation of the claims (claims 78, 82-85, 89-90, and 92).

g) Rejection of claims 61-76, 88-95, and 100 under 35 U.S.C. 112, second paragraph, is withdrawn in light of applicant's amendment thereto. (claims 61-63, 65-68, 79- -81, 87, 91, 93-95) and light of cancellation of the claims (claims 64, 69-76, 88-90, 92, 100).

h) Rejection to claim 94 under 35 U.S.C. 101 is withdrawn in light of applicant's amendment thereto.

i) Rejection to claims 61-62 and 64-68, 81-82, 84-86, 89-90, 92-93, 100 under 35 U.S.C. 102(b) (Aasjford et al) is withdrawn in light of applicant's amendment thereto (claims 61-62, 65-68, 81, 86, and 93) and light of cancellation of the claims (claims 64, 82, 84-85, 89-90, 92, and 100).

j) Rejection to claim 94 under 35 U.S.C. 102(b) (Chugh et al) is withdrawn in light of applicant's amendment thereto.

k) Rejection to claims 64, 82-85, 88-90, 92 and 100 under 35 U.S.C. 102 (b) (Hamada et al) is withdrawn in light of cancellation of the claims.

l) Rejection to claim 95 under 35 U.S.C. 103 (a) under (Takada et al in view of Hamada et al 1984) is withdrawn in light of applicant's amendment thereto.

m) Rejection to claim 94 under 35 U.S.C. 103 (a) under (Aasjford et al in view of Hamada et al 1984) is withdrawn in light of applicant's amendment thereto.

n) Objection to claims 61, 69, 81-85, 87-91, and 95, (acronym) pg. 1 is withdrawn in light of applicant's amendment thereto.

Claim Rejections Maintained

Claim Objections

3. Claim 67 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 67 is drawn to a monoclonal antibody of claim 61, wherein the antibody is capable of binding to LTA of Gram positive bacteria fixed to a solid support does not further limit the structure of the monoclonal antibody in claim 61. The rejection is maintained for the reason set forth in the previous office action.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. The rejection of claims 61, 77, 79, 93 and 95 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7, 9-12,14-19 of U.S. Patent No. 6,610,293 are maintained for the reason set forth in the previous office action.

5. The rejection to claims 77, 81, 86-87, 93 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 53-58, 79-83 of copending Application No. 11/193,440 are maintained for the reason set forth in the previous office action.

6. The claims 77, 79-81, 86-87, and 93 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 40-43 and 47-68 and 72 of copending Application No. 10/323,926 are maintained for the reason set forth in the previous office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless -
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The rejection of claims 61-62 and 65-67, 81, 86-87, and 93 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamada et al 1984, Microbiol. Immunol. Vol. 28

No. 9 pgs. 1009-1021 in light of Roitt et al, 1993, Immunology, 3rd Edition, Mosby, St is maintained for the reason set forth in the previous office action.

Applicant arguments:

The Examiner states that the 3G6 antibody disclosed by Hamada et al. would inherently opsonize gram positive bacteria in light of the teaching of Roitt. However, the Examiner's statement that "antibodies" inherently have the ability to opsonize bacteria by virtue of their binding" is incorrect with respect to anti-LTA antibodies, under principles of inherency, "if the prior art necessarily functions with, or includes, the claimed limitations it anticipates."

As set forth in more detail below, it cannot be established that all monoclonal antibodies are opsonic and consequently protective. As set forth in the Amendment and Response filed on August 23, 2007, at the time the application was filed; application was filed, the art taught that anti-LTA antibodies were not opsonic. Takeda et at. published that antibodies to teichoic acid afforded no protection against bacteremia, whereas antibodies to PS/A effectively protected against bacteremia. The reference which shows that immunization with S. epidermidis strain SE360 which expresses a teichoic acid (see page 2540), used as a control, and provided no protection against bacterial endocarditis.

Kojima et al. similarly report that antibodies to techoic acid, actually used as a control, afforded no protection against bacteremia which shows that immunization with S. epidermidis strain SE360 which expresses a teichoic acid (see page 436), used as a control, in fact, provided no protective efficacy on dissemination of coagualase-negative staphylococci from an infected catheter. Further, Fattom et al show that anti-techoic acid antibodies, used as a control, lacked opsonophagocytic activity, whereas antibodies to capsular type 1 and type 2 exhibited opsonophagocyfic activity of the reference which shows that anti-teichoic acid antibodies were used as controls and showed no opsonophagocy. Thus, the functional properties of the presently pending claims are not inherent in all antibodies.

Moreover, the Hamada et al reference itself casts doubt on the ability of the 3G6 antibody disclosed therein to bind to poly-glycerol phosphate of Lipoteichoic acid (LTA)

of Gram positive bacteria with a binding affinity of about 10^-8 M or higher or to bind to and enhance opsonization of multiple serotypes of Staphylococcus epidermidis, coagulase negative staphylococci and Staphylococcus aureus by phagocytic cells with or without complement as compared to an appropriate control in an in vitro opsonization assay, or to be present in an effective amount to treat neonates having a staphylococcal infection. Further, the heterogeneity in functional activity displayed by the 3G6 antibody indicates that the antibody is not appropriate for therapeutic use, e.g., for treating neonates having staphylococcal infections. As many different strains of Staphylococci are typically isolated from individual neonates, in order m be suitable for treatment of neonates having a staphylococcal infection as required by pending claim 61.

In addition, the Hamada el el. fails to teach or suggest a monoclonal antibody which binds to poly-glycerol phosphate of LTA with a binding affinity of about 10^-8. or higher or a monoclonal antibody having the structural properties required by claim 77, the claims that depend from new claims l04-115.

Examiner's Response to Applicant's Arguments:

Applicant's arguments have been fully considered but are not deemed to be persuasive. Examiner accepts amendments that have been made to claims. The Examiner states that the 3G6 antibody disclosed by Hamada et al. would not inherently opsonize gram positive bacteria in light of the teaching of Roitt. The definition of opsonization is the process by which bacteria are altered by opsonins so as to become more readily and more efficiently engulfed by phagocytes. The definition of opsonin is antibody or product of complement activation in blood serum that causes bacteria or other foreign cells to become more susceptible to the action of phagocytes.

However Kaufmann et al teach that bacteria process a polysaccharide capsule, which is in itself antiphagocytic, preventing uptake by host cells. However capsular components such as polysaccharides are also highly immunogenic, leading to the production of IgM and in some cases, such as pneumococcal polysaccharide IgG2. The production of IgM and IgG can activate complement components, which opsonize bacteria, thus promoting phagocytosis and hence has direct opsonizing activities. To

avoid complement complement opsonization, the lipoteichoic acid of Staphylococcus aureus can bind complement at a site remote from the bacteria, thus counteracting the defense mechanism. To avoid deleterious effects of host antibody, many extracellular bacteria such as Staphylococcus, exhibit antigenic variation of their cell walls capsules. The process then permits the extracellular bacteria to escape recognition by a specific antibody that were generated in response to previous infection. For ex. S. pyongenes, in which there are over 100 distinct serotype of M proteins and in which an antibody generated to one serotype fail to protect against infection with one another (see

Kauffmann et al Immunology of Infectious Disease 2002 pg. 214 column 1, Table 2). Fischetti et al further disclose that IgG fraction tested for their ability to bind to purified M6 protein. Fischetti et al teach the protein molecule binding to an antibody may function as an inhibitor of phagocytosis and that even fragment from opsonic IgG have the capacity to neutralize the "active" determinants on the molecule, thus allowing lower concentrations of IgG with functional Fc receptors to mediate phagocytosis (see abstract Fischetti 1983 Vol. 130 No. 2 Journal of Immunology pgs.896-902) . Therefore stating that an antibody's function is to opsonize bacteria. However if bacteria is not opsonize it could be because a polysaccharide capsule is antiphagocytic. Thus an antibody that binds to immunogenic lipoteichoic acid, that wants opsonize bacteria thus activate complement may not be able to due to because of the process of antiphagocytosis. Therefore it's not the reason that an antibody do not have the ability to opsonize, to avoid phagocytosis, extracelluar bacteria escape to avoid specific antibodies. Therefore a monoclonal antibody that binds to lipoteichoic acid may not opsonize for the reason listed above and not because a monoclonal antibody bound to lipoteichoic acid is not capable.

Applicant's argue that the Hamada et al reference itself casts doubt on the ability of the 3G6 antibody disclosed therein to bind to poly-glycerol phosphate of Lipoteichoic acid (LTA) of Gram positive bacteria with a binding affinity of about 10^-8 M or higher to bind to and enhance opsonization of multiple serotypes of Staphylococcus epidermidis, coagulase negative staphylococci and Staphylococcus aureus by phagocytic cells with or without complement as compared to an appropriate control in an in vitro opsonization

assay, or to be present in an effective amount to treat neonates having a staphylococcal infection. Furthermore the rejection is based on claims set forth in previous office action, therefore the newly cited claims are not considered in the rejection discussed as set forth supra.

Applicant's argue further, the heterogeneity in functional activity displayed by the 3G6 antibody indicates that the antibody is not appropriate for therapeutic use, e.g., for treating neonates having staphylococcal infections. As many different strains of Staphylococci are typically isolated from individual neonates, in order m be suitable for treatment of neonates having a staphylococcal infection as required by pending claim 61. However the claims are drawn to a monoclonal antibody and treating neonates is considered intended use.

Applicant's argue that in addition, the Hamada el fails to teach or suggest a monoclonal antibody which binds to poly-glycerol phosphate of LTA with a binding affinity of about 10^-8. or higher or a monoclonal antibody having the structural properties required by claim 77, the claims that depend from new claims I04-115. Roitt does not make up the deficiencies of the primary reference.

However, Roitt is not a prior art reference, it is merely a reference to explain language taught in a prior art reference. Furthermore the rejection is based on claims set forth in previous office action, therefore the newly cited claims are not considered in the rejection discussed as set forth supra.

As outlined previously, the instant claims the instant claims are drawn to composition comprising an amount of a monoclonal antibody.

Hamada et al teaches a monoclonal antibody 3G6mAb isotyped as being IgG that reacts with the glycerophosphate (PGP), the backbone of Lipoteichoic acid of *Staphylococcus aureus and Staphylococcus epidermidis* (see pg. 1017 second paragraph and pg. 1018 Table 3). Hamada et al teach that LTAs are a group of polymers composed of glycerophosphate (PGP) (see pg. 1009 first paragraph). Hamada et al further teach that 3G6mAb is also specific for PGP of *Streptococcus mutans*, *Streptococcus faecalis*, and *Streptococcus pyogenes*. The monoclonal

antibodies of Hamada et al inherently opsonize gram positive bacteria by 75% over background because (1) the background is not defined and encompasses the absence of antibody and Roitt et al teach antibodies inherently have the ability to opsonize bacteria by virtue of their binding (see pg. 1.7, column, Figure 1.12) to a large extent as compare to the absence of any opsonin. Therefore, the property of "enhancing opsonization of gram positive bacteria by 75% or more over background" is inherent to the ability of antibodies to opsonize and any gram positive bacteria-binding antibody would necessarily opsonize 100% as compared to background, the absence of antibody.

As to dependent claim 81, the monoclonal antibodies of Hamada et al inherently binds to LTA of exposed on the surface of the cell wall of Gram positive bacteria because glycerol-phosphate is found on the surface of the cell wall of Gram positive bacteria and antibodies bind to glycerol-phosphate.

As to dependent claims, the monoclonal antibodies of Hamada et al inherently binds to LTA of Gram positive bacteria that are multiple serotypes of *Staphylococcus epidermidis, Staphylococcus aureus*, or both *Staphylococcus epidermidis* and *Staphylococcus aureus* (claim 85) and the multiple serotypes of *Staphylococcus aureus* are serotype 5, serotype 8, or both serotype 5 and serotype 8 (claim 86) because serotypes are not defined by a particular LTA structure but are defined by capsules.

As to dependent claims, the monoclonal antibodies of Hamada et al inherently bind to LTA of Gram positive bacteria at a binding affinity of at least about 10E-7M or more (claim 89) and binding affinity of at least about 10E-8M or more (claim 90) because affinity is inherent to antibodies and antibodies would have this property in the absence of evidenced to the contrary.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent

and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 61,101 and 104-115 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 9-12,14-19 of U.S. Patent No. 6,610,293.

In the instant case, the claims are drawn to dependent claim 101, a composition of claim 61, wherein the antibody is of the IgG1 isotype.

Claims 1-6 of U.S. Patent No. 6,610,293 teach a composition comprising an amount of a monoclonal antibody (chimeric immunoglobulin chain) and a pharmaceutical carrier, wherein the antibody specifically binds to poly-glycerol phosphate of Lipoteichoic acid (LTA) of Gram positive bacteria with a binding affinity of about (10^-8) or higher and is of the IgG isotype, wherein the antibody binds to and enhances opsonization multiple serotype of Staphylococcus epidermidis, coagulase negative staphylococci and Staphylococcus aureus by phagocytic cell with or with out complement as compared to an appropriate control in an in vitro opsonization assay.

9. Claims 9-12, and 14-19 of U.S. Patent No. 6,610,293 teach composition comprising a monoclonal antibody (chimeric immunoglobulin) which specifically binds to poly-glycerol phosphate of LTA of Gram positive bacteria with a binding affinity of l0^-

8M or higher, or antigen binding fragment thereof, and a pharmaceutically acceptable carrier, wherein the monoclonal antibody comprises the heavy/light chain variable region set forth as SEQ ID NO.87 and SEQ ID NO. 89. Furthermore , U.S. Patent No. 6,610,293 teach a composition comprising a monoclonal antibody which specifically binds to poly-glycerol phosphate, of LTA of Gram positive bacteria with a binding affinity of 10^-8M or higher, or antigen binding fragment thereof, and a pharmaceutically acceptable carrier, wherein the monoclonal antibody comprises a heavy/light chain comprising the heavy/light chain complementarity determining regions (CDRs) of the monoclonal antibody 96-110 and a variable region having 80% amino acid identity with SEQ ID NO:87 and SEQ ID NO:89 and having at least 70% amino acid identity with the monoclonal antibody 96-110 heavy/light chain variable region set forth as SEQ ID NO: 87 and SEQ ID NO: 89..

Although the conflicting claims are not identical, they are not patentably distinct. The U.S. Patent No. 6,610293 recites the "chimeric immunoglobulin". The species of the chimeric immunoglobulin anticipate the genus claims of any monoclonal antibody.

Thus, claims 101 and 104-115 encompassing the monoclonal antibody in the present application are obvious over claims 1-6, 9-12,14-19 of U.S. Patent No. 6,610293 August 26, 2003.

10. Claims 104-115 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 53, 83, 91-92, and 96 of copending Application No. 11/193,440.

Claims 53, 83, 91-92, 96 of U.S. Application No. 11/193,440 teach composition comprising a monoclonal antibody (humanized antibody) which specifically binds to poly-glycerol phosphate of LTA of Gram positive bacteria with a binding affinity of l0^-8M or higher, or antigen binding fragment thereof, and a pharmaceutically acceptable carrier, wherein the monoclonal antibody comprises the heavy/light chain variable region set forth as SEQ ID NO.87 and SEQ ID NO. 89. Furthermore , U.S. Patent No. 6,610,293 teach a composition comprising a monoclonal antibody which specifically binds to poly-glycerol phosphate, of LTA of Gram positive bacteria with a binding affinity

of 10^-8M or higher, or antigen binding fragment thereof, and a pharmaceutically acceptable carrier, wherein the monoclonal antibody comprises a heavy/light chain comprising the heavy/light chain complementarity determining regions (CDRs) of the monoclonal antibody 96-110 and a variable region having 80% amino acid identity with SEQ ID NO:87 and SEQ ID NO:89 and having at least 70% amino acid identity with the monoclonal antibody 96-110 heavy/light chain variable region set forth as SEQ ID NO: 87 and SEQ ID NO: 89..

Although the conflicting claims are not identical, they are not patentably distinct. The U.S. Application No. 11/193,440 recites the "humanized antibody". The species of the humanized antibody anticipate the genus claims of any monoclonal antibody.

Thus, claims 101 and 104-115 encompassing the monoclonal antibody in the present application are obvious over claims 53, 83, 91-92, and 96 of Application No. 11/193,440.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

11. Claim 61-63, 65-68, 77, 79-81, 86-87, 91, 93-95, 101, and 104-115 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the

specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

12. Claim 61-63, 65-68, 77, 79-81, 86-87, 91, 93-95, 101, and 104-115 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim recites the phrase "binding affinity of about 10^-8M". Although Applicant filed an explanation in the Applicants Arguments/Remarks on 12/23/2005, 9/20/2007, and 12/4/2007 stating support for the recitation set forth supra, there is no support provided in the in the written description of the specification. Therefore, it is apparent, that Applicants were not in possession of the claimed monoclonal antibody at the time of filing. Applicants pointing to the specification by page and line number where specific written description for the recititation set forth supra may resolve this issue. This is a new matter rejection.

13. Claims 107-109 and 111-115 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

The claim is drawn to a vast genus of variable regions of amino acids of SEQ ID NO:87 and SEQ ID NO: 89, wherein the variable region has 70%, 85%, 90%, and 95%, amino acid identity with SEQ ID NO: 87 and SEQ ID NO: 89. To fulfill the written

description requirements set forth under 35 USC § 112, first paragraph, the specification must describe at least a substantial number of the members of the claimed genus, or alternatively describe a representative member of the claimed genus, which shares a particularly defining feature common to at least a substantial number of the members of the claimed genus, which would enable the skilled artisan to immediately recognize and distinguish its members from others, so as to reasonably convey to the skilled artisan that Applicant has possession the claimed invention. To adequately describe the genus of amino acids of SEQ ID NO:87 and SEQ ID NO: 89, applicant must also give a structural and functional limitation.

The specification, however, does not disclose distinguishing and identifying features of a representative member of the genus of the variable regions of amino acids of SEQ ID NO:87 and SEQ ID NO: 89, wherein the variable region has 70%, 85%, 90%, and 95%, amino acid identity with SED ID NO:87 and SEQ ID NO: 89 to which the claims are drawn, such as a correlation between structure of the peptide and its recited function, so that the skilled artisan could immediately envision or recognize at least a substantial number of members of the claimed genus of antigens.

MPEP § 2163.02 states, "an objective standard for determining compliance with the written description requirement is, 'does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed". The courts have decided: The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. See Vas-Cath, Inc.'v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Federal Circuit, 1991). Furthermore, the written description provision of 35 USC § 112 is severable from its enablement provision; and adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it.

The Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, paragraph 1, "'Written Description" Requirement (66 FR 1099-1111, January 5,2001)

state, "[p]ossession may be shown in a variety of ways including description of an actual reduction to practice, or by showing the invention was 'ready for patenting' such as by disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention" (Id. at 1104).

The Guidelines further state, "[f]or inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species cannot be achieved by disclosing only one species within the genus" (Id. at 1106); accordingly, it follows that an adequate written description of a genus cannot be achieved in the absence of a disclosure of at least one species within the genus. Bowie et al (Science, 1990, 247:1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function, carry out the instructions of the genome and form immunoepitopes. Bowie et al. further teach that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex. (column 1, page 1306). Bowie et al further teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (column 2, page 1306). Additionally as evidenced by Greenspan et al. (Nature Biotechnology 7: 837-838, 1999), defining epitopes is not as easy as it seems. Greenspan et al. recommends defining an epitope by the structural characterization of the molecular interface between the antigen and the antibody is necessary to define an "epitope" (page 937, column 2). According to Greenspan et al., an epitope will include residues that make contacts with a ligand, here the antibody, but are energetically neutral, Or even destabilizing to binding. Furthermore, an epitope will not include any residue not contacted by the antibody, even though substitution of such a residue might profoundly affect binding.

Accordingly, it follows that the immunoepitopes that can elicit a protective immune response to a given pathogen can only be identified empirically. Therefore, absent a detailed and particular description of a representative number, or at least a substantial number of the members of the genus of immunoepitopes, the skilled artisan could not immediately recognize or distinguish members of the claimed genus of antigens. Therefore, in accordance with the Guidelines, the description of amino acids is not deemed representative of the genus of variable regions of amino acids of SEQ ID NO:87 and SEQ ID NO: 89, wherein the variable region has 70%, 85%, 90%, and 95%, amino acid identity with SEQ ID NO: 87 and SEQ ID NO: 89 of the claimed invention, thus the claim does not meet the written description requirement.

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14. Claims 61and 86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 61 the independent claim recites the phrase "binding affinity of about". However, neither the claim nor the specification clearly defines nor sets forth the meaning or means to assess "binding affinity of about". There is no art define meaning in regards to monoclonal antibody and "binding affinity of about". Therefore, the skilled artisan would not be readily apprised of the metes and bounds of "binding affinity of about" nor how to assess such. It is unclear how to interpret what is considered "of about" and inasmuch as it is not a recognized term and not defined in the specification.

16. As to claim 86, the claim is dependent from a cancelled claim. No limitation can be determined. Appropriate correction is required.

Status of the Claims

15. No claims allowed.

Claims 61-63, 65-68, 77, 79-81, 86-87, 91, 93-95, 101, and 104-115 are rejected.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nina A. Archie whose telephone number is 571-272-9938. The examiner can normally be reached on Monday-Friday 8:30-5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Shanon Foley can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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